

REMARKS

Applicants thank the Examiner for the thorough consideration given the present Application. Claims 1 and 2-22 are pending in this Application. Claim is cancelled by this Response. Claims 14, and 15 are amended by this Response. Claims 1 and 2 are independent claims.

Claim Objections

The Office Action states that dependent claims 6-10 and 13-15 are objected to because claims 6-10 and 13-15 draw reference to the limitation “the reception-wave characterizing qualities” which is present in independent claim 2, but not in independent claim 1. Insofar as it pertains to the presently pending claims, this objection is respectfully traversed.

Claims 6-10

With respect to dependent claims 6-10, Applicants respectfully note that the reception-wave characterizing quantities in question pertain to those used by the direction calculating unit of independent claim 1. Applicants therefore respectfully submit that the reference to reception-wave characterizing quantities in dependent claims 6-10 is proper. Accordingly, reconsideration and withdrawal of this objection is respectfully requested

Claims 13-15

Applicants respectfully note that dependent claim 13 does not depend on claim 3 but instead depends on independent claim 1 and makes no explicit reference to “the reception-wave characterizing qualities.” Applicants have amended claims 14 and 15 to recite the claim limitation of “reception-wave reception amplitudes used in calculating the primary directions belonging to an area” in accordance with the Examiner’s suggestion, so that there is no potential confusion as to the context in which any “reception-wave characterizing qualities” are referred to therein. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 103 Yamada-Satou

Claims 1-18 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Reissued Patent RE37725 to Yamada (hereafter “Yamada”) in view of U.S. Patent 6,380,884 to Satou et al. (hereafter “Satou”). Insofar as it pertains to the presently pending claims, this rejection is respectfully traversed.

Yamada teaches a scanning radar apparatus for a car that detects a direction of an advancing or approaching vehicle by receiving radar beams reflected from said vehicle. (Col. 1, lines 10-15). Specifically, Yamada teaches a “center direction determining unit which detects a distribution pattern of the received reflection beams.” (Col. 2, lines 30-31).

Claim 1

With respect to independent claim 1, Applicants respectfully submit that Yamada does not teach or suggest “a direction integrating unit for ... calculating an integrated direction ... from an area in which the density in a distribution of the plurality of primary directions is a predetermined value or greater.” Applicants respectfully submit that with respect to target identification, Yamada teaches no directional integration or calculation with respect to density distributions of calculated primary directions. The center direction determining unit of Yamada detects a distribution pattern of received reflection beams and smoothes out the distribution pattern using an approximation in order to eliminate noise spikes, then takes the scanning angle corresponding to the directional gain peak of the pattern as the direction of the center of a target. (Col. 9, lines 1-12). Yamada does not teach or suggest examining the density of distribution patterns in a beam sweep to determine an overall direction of an object that may be generating multiple distribution patterns and is incapable of teaching this because the antenna of Yamada is a single beam / single receiver concept and therefore limited only to TDOA-type analysis of reception-wave data. A density distribution type analysis requires not only multiple receivers, but also a signal processing paradigm designed to take advantage of comparisons between reception-waves detected by the different receivers. The addition of Satou, which is relied upon to teach transmitting a plurality of overlapping beams, does not address this deficiency in the teaching of Yamada with respect to how received signals are interpreted and processed. Simply

transmitting multiple beams simultaneously will not by itself result in a paradigm shift in how the received data is processed.

Claim 2

With respect to independent claim 2, Applicants respectfully submit that Yamada is equally deficient in teaching “a direction integrating unit for ... calculating an integrated direction ... from an area in which the density in a distribution of the reception-wave characterizing quantities used in calculating the plurality of primary directions is a predetermined value or greater, the integrated direction calculation being based on the target directions belonging to the area.” In the same way that Yamada’s center direction determining unit does not examine or address the density of distribution patterns with respect to direction, it also does not examine or address the density of distribution patterns with respect to other reception-wave properties. The addition of Satou herein to teach transmitting multiple beams, as in independent claim 1, does not address this deficiency in Yamada’s teaching. Satou is not relied upon, nor can it be relied upon, to replace the detection paradigm of Yamada.

Claims 3-18 and 20

With respect to dependent claims 3-18 and 20, Applicants respectfully submit that these claims are allowable at least by virtue of their dependency on independent claims 1 and 2.

Conclusion

Applicants respectfully submit that neither Yamada nor Satou, taken alone or in combination (assuming the references may be combined – which Applicants do not admit) teach or suggest a direction integrating unit for calculating an integrated direction from multiple primary directions based on the density distributions of either the primary directions or the reception-wave properties used to calculate those directions. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 103 – Claims 19, and 21-23

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada in view of Satou in further view of U.S. Patent 6,646,591 to Aker et al. (hereafter “Aker”).

Claims 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada in view of Satou in further view of U.S. Patent 5,729,465 to Barbaresco (hereafter “Barbaresco”).

Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada in view of Satou in view of Barbaresco in further view of U.S. Patent 6,278,798 to Rao (hereafter “Rao”).

Insofar as they pertain to the presently pending claims, these rejections are respectfully traversed.

With respect to dependent claims 19 and 21-23, Applicants respectfully submit that these claims are allowable at least by virtue of their dependency on independent claims 1 and 2. Applicants respectfully submit that none of Rao, Barbaresco, Aker, nor Satou, taken alone or in combination (assuming the references may be combined – which Applicants do not admit) are relied upon to remedy the deficiencies of Yamada set forth above with respect to independent claims 1 and 2, nor can they properly be relied upon to do so. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

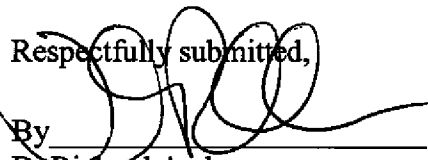
Conclusion

In view of the above remarks, Applicants submit that the application is now in condition for allowance. Accordingly, an early and favorable action is respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Naphtali Y. Matlis (Reg. No. 61,592) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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